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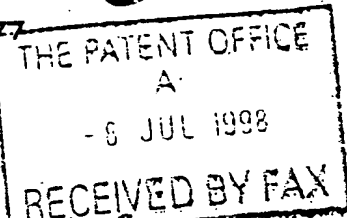
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1. Your reference

P70987.GB

08 JUL 1998

2. Patent application number

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3. Full name, address and postcode of the or of each applicant (underline all surnames)

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Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

UNITED KINGDOM

7473879001

4. Title of the invention

BAGS

5. Name of your agent (if you have one)

SANDERSON, NIGEL PAUL

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

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Patents ADP number (if you know it)

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Country

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Number of earlier application

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Continuation sheets of this form

Description	8
Claim(s)	3
Abstract	1
Drawing(s)	4

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Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77) 1

Request for substantive examination (Patents Form 10/77) 1

Any other documents
(please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature *Dibb Lupton Alsop* Date 8.7.98

DIBB LUPTON ALSOP

12. Name and daytime telephone number of person to contact in the United Kingdom NIGEL PAUL SANDERSON
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BAGS

5 The present invention relates to bags or sacks, and in particular to plastic bags or sacks having an improved easily openable construction.

10 The bags of the present invention commonly take the form of sacks and are primarily intended for industrial processing uses within and between factory premises, most especially in the food processing industry. The bags of the invention may also be suitable as the external packaging of certain solid and liquid consumer products (such as detergents).

15 Plastic bags of many different types are known, but one particular problem has been in providing bags (especially industrial sacks) which incorporate an easily openable closure and which are easily and relatively cheaply manufactured, easy and reliable to use and suitable for
20 bags containing relatively heavy materials. The present invention seeks to provide a bag which has a closure capable of meeting these requirements.

25 The bags of the invention are particularly suitable for containing bulk products in the form of powders, granules or liquids. Examples of such products include bulk chemicals and bulk ingredients such as are used in human and animal foodstuffs and in household products such as washing powders and washing liquids; foodstuffs and
30 household products; and garden products such as peat or compost. In the food industry, plastic bags and sacks are especially used in the transport of foods, ingredients or partially prepared food products around or between premises. In the context of this specification,
35 bulk product may include retail consumer products such as liquid and solid detergents and food ingredients for which the bags of the invention may form the external

packaging.

Accordingly, the invention provides a plastic bag comprising first and second superposed side walls having substantially coincident end boundary edges, a closure flap overlying an end region of the first wall, depending from the end boundary edge of the second side wall, including a first fold substantially parallel to and adjacent to the end boundary edges and having a region which is peelably attached to the first side wall along the end boundary edge of said first side wall, the first and second side walls and the closure flap being sealed together along their side edges wherein the closure flap further comprises two lines of weakness each extending from the end edge of the cover flap distant from the first fold through the peelably attached region substantially to the end boundary edge of the first side wall, whereby the cover flap may be torn along the lines of weakness and the portion thereof lying between the lines of weakness may be separated from the first side wall by peeling the said portion away from the first side wall across the peelably attached region to expose the interior of the bag.

In one variation of the invention the ends of the lines of weakness proximate the end boundary edge of the first wall are spaced further apart than the ends of the lines of weakness at the end edge of the cover flap. In this variation, the ends of the lines of weakness at the end of the cover flap may be so spaced apart as to define a finger tab by means of which the cover flap may be gripped for tearing.

However, the lines of weakness are preferably substantially straight and generally parallel to the side edges of the bag.

In a further variation of the invention, the cover flap is sealed to the first side wall along portions of its end edge extending from respective lines of weakness to the side edges.

In a particularly preferred variation of the invention the bag further comprises a second flap depending from the end boundary edge of the first side wall along a second fold and extending into the interior of the bag.

Preferably, the closure flap is peelably attached to the first side wall by means of a peelable adhesive, such as a pressure sensitive adhesive. For example, the adhesive may comprise two non-tacky components a first of which is applied to the closure flap and the second of which is applied to the first side wall. When the two components are brought together and pressure is applied, an adhesive bond is formed.

Alternatively, the closure flap may be peelably attached to the first side wall by means of a peelable heat welded or heat sealed region.

In order to provide a peelable heat weld or seal, the strength of the weld must be weakened to some extent. This may be achieved by interposing some sort of contaminant between the materials to be welded. The contaminant may be chosen from a wide variety of materials but examples include inks and lacquers or a third film layer which welds less strongly to the layers of material than the materials weld to themselves.

In the bag of the invention the end of the bag distant from the first fold may be open for filling the bag. When the bag is filled with contents, the end of the bag

distant from the first fold may be closed by means of a heat seal, or other suitable means.

5 Preferably, the bag of this aspect of the invention further comprises mitre seals extending from respective side edges of the bag near the end edge of the cover flap to the first fold by means of which the cover portion, the first side wall and the second side wall are sealed together.

10

The seals along the side edges, the seals along the end edges of the cover flap and the mitre seals are preferably heat seals.

15 In another particularly preferred variation, the lines of weakness are perforations formed in the cover flap.

20 In an especially convenient arrangement, the lines of weakness are so shaped that the area of the cover portion defined between them adopts the shape of a dispensing spout when torn back along the lines of weakness.

25 For a better understanding of the invention, and to show how the same may be carried into effect, reference will be made (by way of example only) to the following drawings, in which,

30 Figure 1 is a schematic plan view of a bag according to one variation of the invention.

Figure 2 is a schematic plan view of a bag according to another variation of the invention.

35 Figure 3 is a section along the line D-D of Figure 2,

Figure 4 is a section along the line B-B of Figure 2,

Figure 5 is a plan view of the bag of Figure 1 in an open condition and,

- 5 Figure 6 is a plan view of the bag of Figure 2 in an open condition.

10 In Figures 1 to 6, the bag 200 has a first side wall 201 and a second side wall 202. The walls 201 and 202 are superposed and joined together such as by heat seals, along their side edges 203, 204. The heat seals along side edges 203, 204 are not specifically illustrated, for reasons of clarity. A closure flap 205 overlies an end region of the first side wall 201 and depends from the 15 second side wall 202 at the end boundary edge 206 of the second side wall 202. The closure flap 205 may be attached to the second side wall by means of a joint but preferably, the closure flap 205 is formed integrally 20 with the second side wall 202 and depends from the second side wall 202 by means of a fold 207. (In figures 3 and 4, the spacing between the first side wall 201, the second side wall 202 and the closure flap 205 is exaggerated for reasons of clarity). A second flap 208 25 extending into the interior 211 of the bag 200 is attached to the end boundary edge 209 of the first wall 201 by means of a second fold 210.

30 The closure flap 205 may be sealed to the first side wall 201 at its end edge 213 by means of seals 212A and 212B (Figure 2) but these are not essential. Seals 212A and 212B are preferably heat seals. An unsealed portion 214 is left between the seals 212A, 212B. A region of peelable adhesive 215 is provided across the width of the 35 bag 20 by means of which the closure flap 205 is adhered to the first side wall 201. Alternative means of peelably

6

attaching the closure flap 205 to the first side wall 201 may be employed. By sealing the cover flap 205 to first side wall 201, the peelable region 215 ensures that the bag is closed and that the contents of the bag cannot escape between first sheet 201 and closure flap 205. Although the peelably attached region 215 has been shown as a line in Figure 1, the region may have other suitable shapes, provided only that in an area proximate the end boundary edge 209 of first side wall 201 the region 215 extends across the full width of the bag. For example the region 205 may be a broader region extending further towards end edge 213 of the closure flap 205. The peelable adhesive may be applied to the closure flap 205, to the first side wall 201, or both of these.

The closure flap 205 further includes lines of weakness, indicated in Figure 1 by dotted lines 216A, 216B which preferably take the form of perforations formed in the closure flap 205. The lines of weakness 216A, 216B extend from the end edge 213 of the closure flap through the adhesive region 215. Preferably, the lines of weakness 216A, 216B do not extend beyond the peelable region 215 towards the fold 207 in order to preserve the integrity of the closure and to prevent product leakage.

Mitre seals 217 are preferably formed across the corners of the bag, preferably by heat sealing. The mitre seals 217 serve to create soft corners on the bag when filled with product, which is preferred for palletisation of the bags. The corners of the bag beyond the mitre seals 217 may be removed if desired. In use of the bags of the invention, the bag is filled with contents by means of end 218 which end 218 is then closed by suitable means such as heat sealing. When it is desired to empty the contents from the bag, the bag is opened by means of closure flap 205. Specifically, when the end edge 213 of

7

the closure flap 205 is gripped and pulled, the closure flap 205 tears along the lines of weakness 216A, 216B and a region 219 is separated from the remaining parts 220 of the closure flap 205. Especially where the end edge 213 of the closure flap 205 is sealed to the first side wall 201 by means of seals 212A and 212B (Fig 2), the unsealed portion 214 acts as a finger tab by means of which the closure flap 205 can be gripped. The region 219 is separated by tearing along the lines of weakness 216A, 216B as far as the peelable region. Where a peelable adhesive is used, the adhesive is selected so that its cohesive strength is less than its adhesive strength, so that as the end edge 213 or finger tab 214 continue to be pulled the region 219 is separated from the first side wall 201 in the peelable region 215 without substantial damage occurring to the region 219 or the first side wall 201. That is, the first side wall 201 and the region 219 are not torn (except along the lines of weakness 216A, 216B) or significantly distorted. When the lines of weakness have been torn along their full length, the region 219 can be opened out at fold 207 so that it can act as a dispensing spout for contents of the bag dispensed through mouth 221 formed between first side wall 201 and second side wall 202, as may best be seen from Figures 5 and 6. In Figures 5 and 6, various features such as the mitre seals 217 and the adhesive region 215 have been omitted for improved clarity.

The optional second flap 208, the end edge 222 of which is illustrated by a dotted line in Figures 1 and 2 assists in maintaining the integrity of the closure when the bag 200 is filled with its contents. Second flap 208 is effective in preventing the contents of the bag from penetrating to an excessive extent between the first side wall 201 and the closure flap 205 around the region of the fold 207, which might otherwise cause distortion of

8

the side wall 201 and/or the closure flap 205 so that they become separated at the peelable region 215. The bag closure would then be breached, allowing the contents to leak or spill.

5

In a variation of the invention, the adhesive region 215 may comprise a re-sealable adhesive so that the region 219 may temporarily be re-closed after a part of the contents have been dispensed.

10

Peelable region 215 is shown in Figures 1 and 2, which are plan views, even though it lies beneath closure flap 205 as viewed in these Figures. In fact, peelable region 215 would not be visible from the exterior when the bag

15 is constructed from an opaque material.

CLAIMS

1. A plastic bag comprising: first and second
superposed side walls having substantially coincident end
boundary edges; and
a closure flap overlying an end region of the first wall,
depending from the end boundary edge of the second side
wall, including a first fold substantially parallel to
and adjacent to the end boundary edges and having a
region which is peelably attached to the first side wall
along the end boundary edge of said first side wall, the
first and second side walls and the closure flap being
sealed together along their side edges,
wherein the closure flap further comprises two lines of
weakness each extending from the end edge of the cover
flap distant from the first fold through the peelably
attached region substantially to the end boundary edge of
the first side wall, whereby the cover flap may be torn
along the lines of weakness and the portion thereof lying
between the lines of weakness may be separated from the
first side wall by peeling the said portion away from the
first side wall across the peelably attached region to
expose the interior of the bag.
2. A plastic bag as claimed in claim 1 wherein the
cover flap is peelably attached to the first side wall by
means of a peelable adhesive.
3. A plastic bag as claimed in claim 1 wherein the
cover flap is peelably attached to the first side wall by
means of a peelable heat welded or peelable heat sealed
region.
4. A plastic bag as claimed in any preceding claim
wherein the lines of weakness are substantially straight
and substantially parallel to the side edges of the bag.

10

5. A plastic bag as claimed in any of claims 1 to 3 wherein the ends of the lines of weakness proximate the end boundary edge of the first wall are spaced further
5 apart than the ends of the lines of weakness at the end of the cover flap.

6. A plastic bag as claimed in claim 5 wherein the ends of the lines of weakness at the end edge of the cover
10 flap are so spaced apart as to define a finger tab by means of which the cover flap may be gripped for tearing.

7. A plastic bag as claimed in any preceding claim wherein the cover flap is sealed to the first side wall
15 along portions of its end edges extending from respective lines of weakness to the side edges.

8. A plastic bag as claimed in any preceding claim further comprising a second flap depending from the end
20 boundary edge of the first side wall along a second fold and extending into the interior of the bag.

9. A plastic bag as claimed in any preceding claim wherein the end of the bag distant from the first fold is
25 open for filling the bag.

10. A plastic bag as claimed in any of claims 1 to 8 wherein the end of the bag distant from the first fold is
closed by means of a heat seal.

30 11 A plastic bag as claimed in any of claims 1 to 10 further comprising mitre seals extending from respective side edges of the bag near the end edge of the cover flap to the first fold, by means of which the cover portion,
35 the first side wall and the second side wall are sealed together.

11

12. A plastic bag as claimed in any preceding claim
wherein the seals along the side edges, the seals along
the end edges of the cover flap and the mitre seals are
5 heat seals.

13. A plastic bag as claimed in any preceding claim
wherein the lines of weakness are perforations formed in
the cover flap.

10

14. A plastic bag as claimed in any preceding claim
wherein the lines of weakness are so shaped that the area
of the cover portion defined between them adopts the
shape of a dispensing spout when torn back along the
15 lines of weakness.

15. A bag substantially as hereinbefore described with
reference to and/or as illustrated in any of Figures 1 to
4.

12

ABSTRACT

BAGS

- 5 The invention provides an easily openable bag having first and second walls and a closure flap joined to the lower of the walls at a fold and overlying the upper wall. The flap is peelably sealed (such as by means of a peelable adhesive) to the upper wall near the fold and
- 10 the flap may be heat sealed to the upper wall at its other end. Lines of weakness are provided in the flap along which the bag may be torn open.

Figure 7.

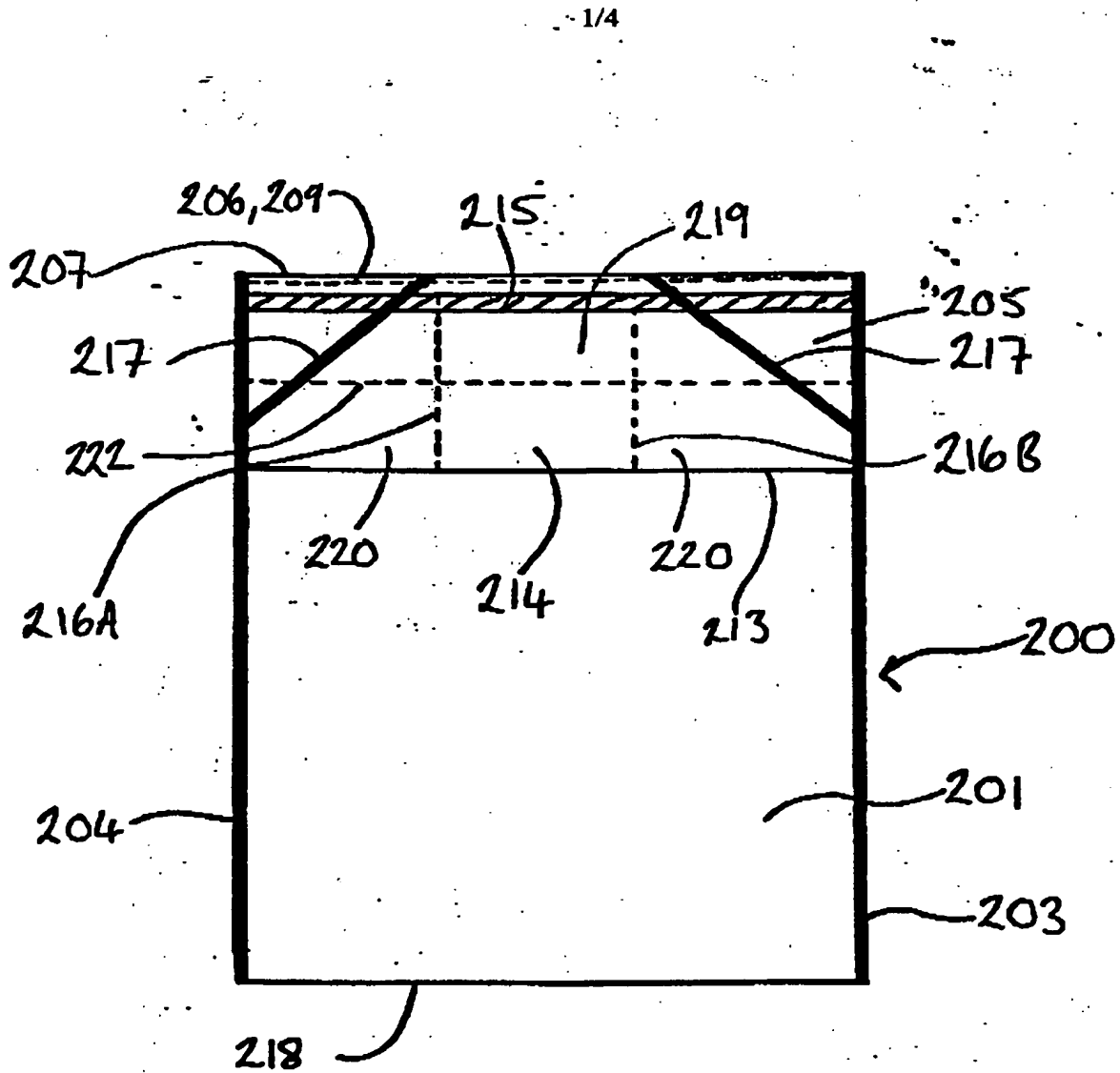


FIG. 1

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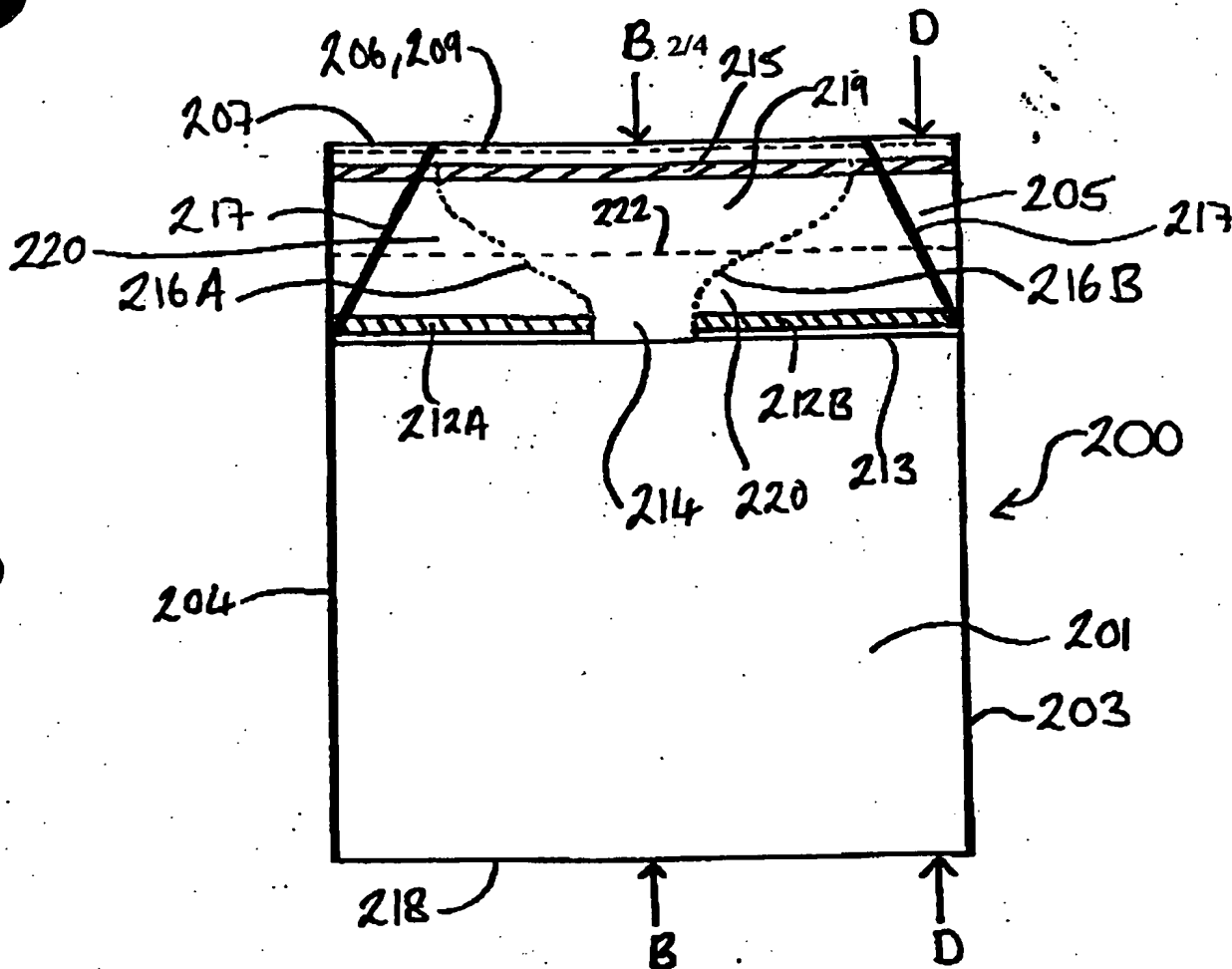


Figure 2

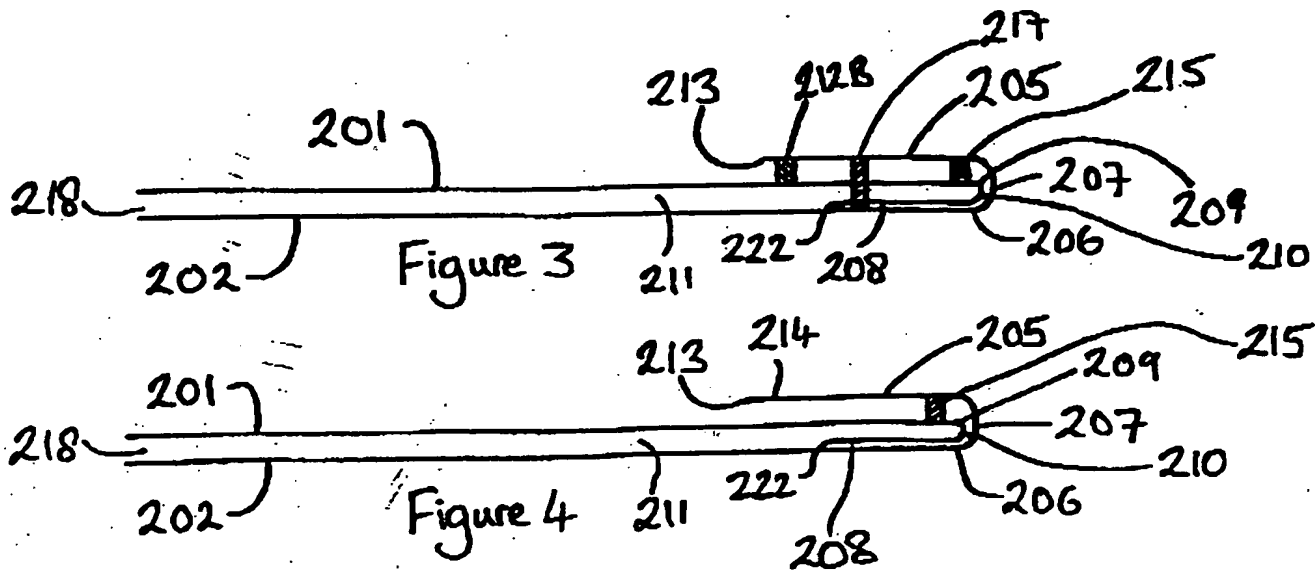


Figure 3

Figure 4

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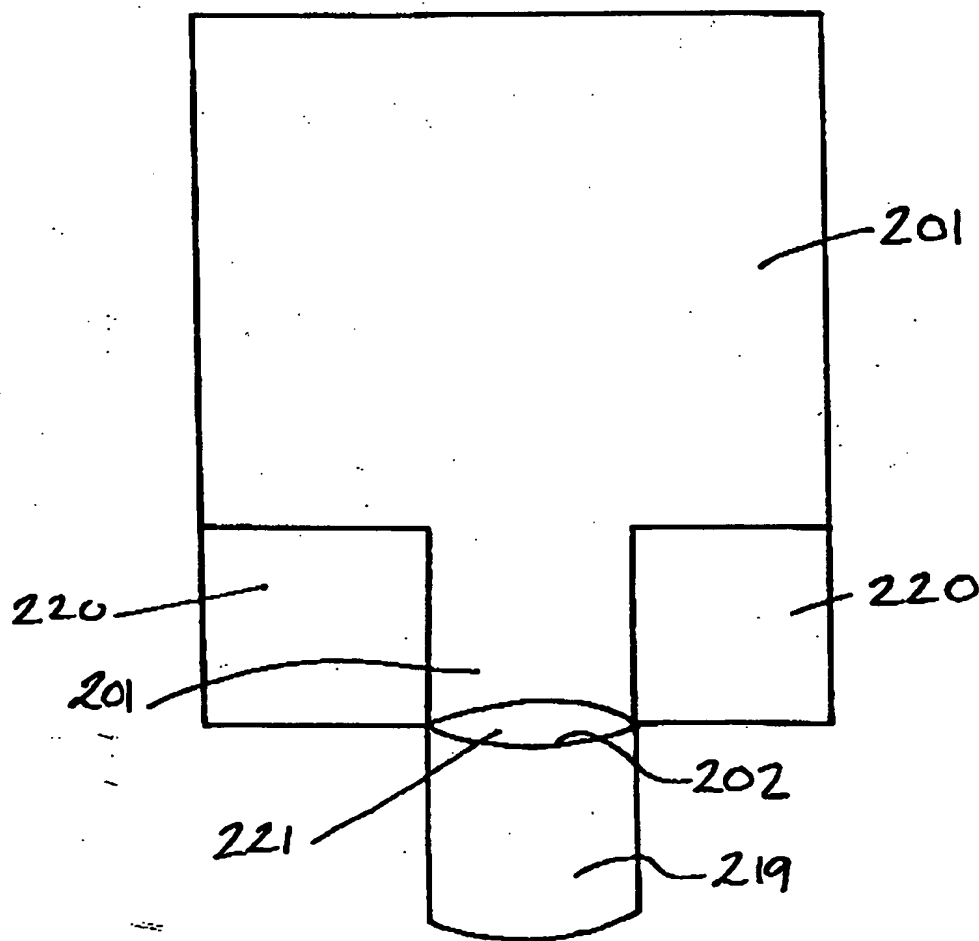


Fig 5

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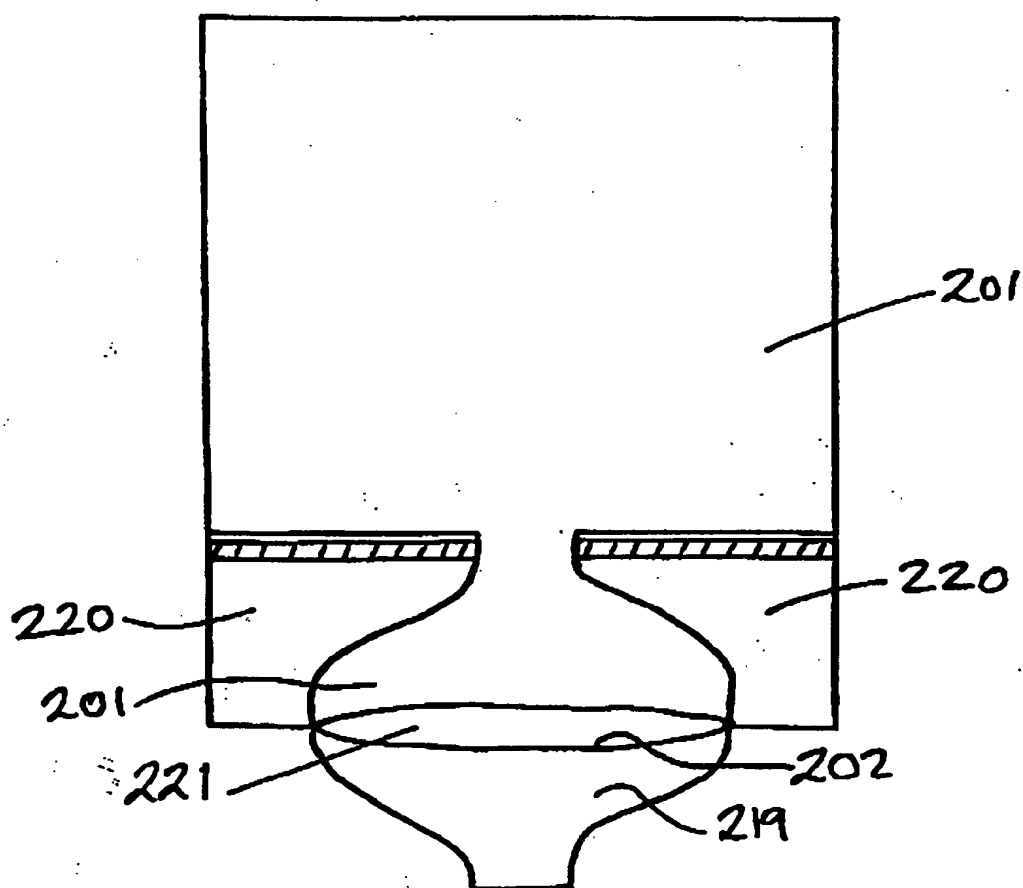


Figure 6

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